
A19 D78 Warmsworth Park

Site information

Site name: Warmsworth Park

Site key: D78

Grid reference: [SE 544 030] (accurate)

Site type: disused quarries, pits and cuttings

Local authority: Doncaster Metropolitan Borough Council, South Yorkshire

Site dimensions: 100 m x 80 m

Site owner: DMBC

Conservation status: Regionally Important Geological **Site date:** 14/9/97

Field surveyor: Scott Engering **Date:** 19/1/07

Stratigraphy and rock types

Time unit: Permian **Rock unit:** Sprotbrough Member, Cadeby Formation, Zechstein Group

Rock type: Dolostone **Details:** Massive and wedge bedded compact limestone with dendritic pyrolusite and stylolites

Time unit: Anglian, Middle Pleistocene **Rock unit:** Till

Rock type: Diamicton, sandy **Details:** Red sandy boulder clay with angular fragments and subrounded pebbles

Site map

(Figure 95) –Warmsworth Park

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Site description

A medium sized quarry in the Sprotbrough Formation (former upper subdivision of Lower Magnesian Limestone) with exposures of massive, wedge bedded, fine grained and compact limestone up to 10 m. Several safe and accessible quarry faces demonstrate the vertical and lateral changes in thickness of beds, typical of this formation. Individual beds of limestone are up to 600 mm thick, making it suited to use as a building stone.

Unlike the Cadeby Formation, crystal lined cavities and calcite veins are not abundant, although many of the beds demonstrate jointing and fractures, often at oblique angles. Stylolites are common and fresh surfaces of the stone show a black speckled appearance which, when viewed through a hand lens, are seen to be dendritic crystal growths of the manganese bearing mineral pyrolusite.

Many of the quarry faces are obscured with vegetation but where exposed in the high quarry benches, the uppermost beds are flaggy in nature, a feature that is highlighted by weathering and the formation of soil horizons.

At one location on the eastern side of the quarry, there is a mass of poorly consolidated red/brown sandy material up to 6.5 m thick with angular and sub-rounded fragments which is probably till similar to that seen at Hexthorpe Flatts, Cedar Road Quarry and New Edlington Brick Pit. However, here it occurs at the same level as an 8 m high limestone quarry face. Junctions with the limestone are not exposed and it is not clear if this is a natural deposit in a fault bound rift within the limestone or relates to the former quarrying activities.

One particularly interesting feature is a vertical joint in a quarry face that shows widening and solution of the limestone by percolating groundwater and is possibly associated with the formation of Karst topography on a once exposed and weathered surface.

RIGS assessment of site value

Ratings: 1–2 very poor; 3–4 poor; 5–6 acceptable/useful; 7–8 quite good; 9–10 very good/excellent; N/A not applicable; D/K don't know

Access and safety

Aspect/Description/Rating

Road access & parking Very poor but with the landlords permission, there is plenty of parking space available in the adjacent public house. Rating: 2

Safety of access Very good at three separate locations. Rating: 9

Safety of exposure Very good. No loose material obvious on quarry faces and bases are clear of vegetation. Rating: 9

Permission to visit D/K

Current condition Very good but needs to be cleaned regularly. Rating: 7

Current conflicting activities Potential nuisance of youths and associated littering and abuse of a public park

Restricting conditions Parking is not ideal (see above)

Nature of exposure Clean and safe extensive old quarry faces up to 10 m

Multiple exposures /prospect for trail

Notes Very good potential in conjunction with Hexthorpe Flatts and Cedar Road Quarry

Culture, heritage & economic

Aspect/Description/Rating

Historic, archaeological & literary associations Local building stone used for construction of several historic buildings in Warmsworth. Rating: 8

Aesthetic landscape Good landscaped public park but limited botanical interest 6 history of Earth Sciences Not applicable. Rating: 0

Economic geology Former local building stone quarry. Good illustration of the fractures etc that limit the applications as a building material. Rating: 7

Notes

Education and science

Surface processes Solution features associated with percolation of groundwater and formation of Karst topography. Glacial deposition. Rating: 7

Geomorphology Not applicable. Rating: 0

Sedimentary Good example of wedge bedding, variation in bed thickness, Stylolites. Rating: 8

Fossils Not applicable. Rating: 0

Igneous Not applicable. Rating: 0

Metamorphic Not applicable. Rating: 0

Tectonic: structural Evidence of rifting and formation of grabens relating to earth. Rating: 7

movements of the South Don and associated faults

Minerals Occurrence of pyrolusite is one characteristic feature of the Sprotbrough Formation. Rating: 7

Stratigraphy Not applicable. Rating: 0

Notes Possesses very good educational and interpretation value. Has the advantage of being next to a branch library where leaflets etc. could be displayed or distributed

Geodiversity value

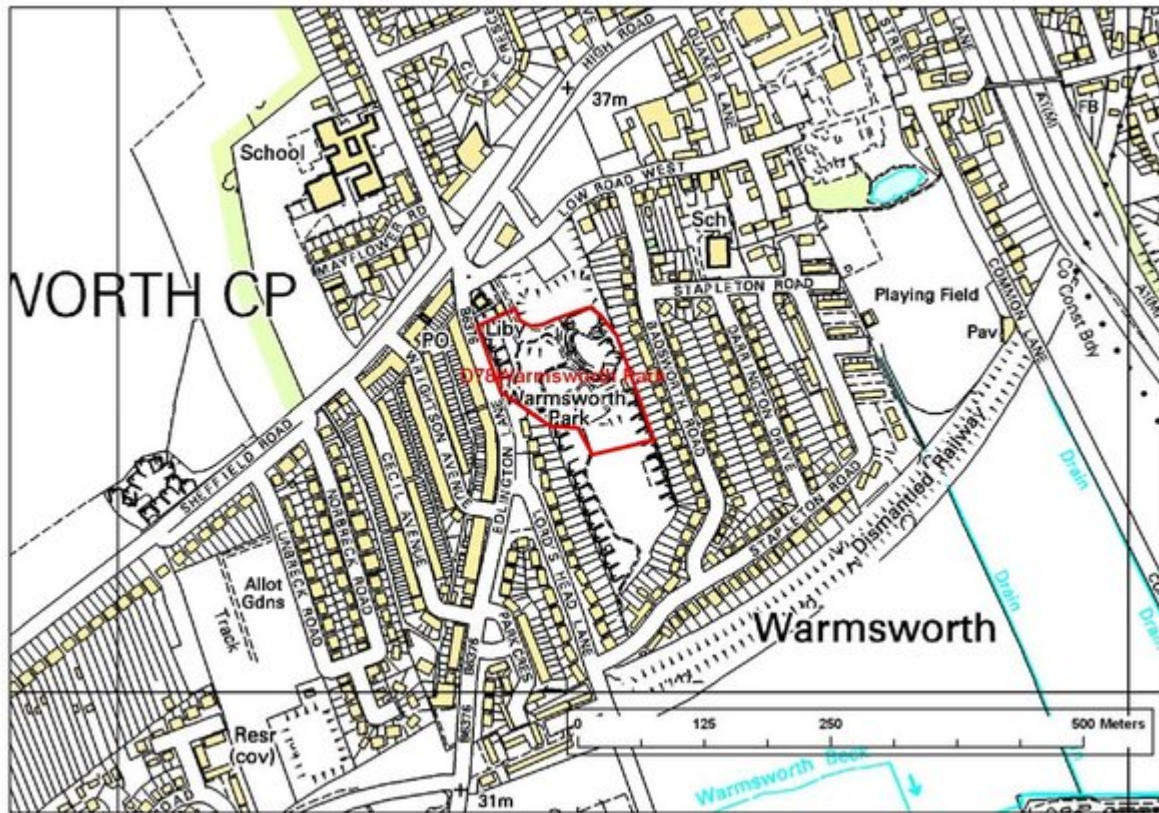
A wide range of geological processes can be demonstrated, especially in conjunction with other nearby sites. Rating: 9

Site photographs D78 Warmsworth Park

(Figure 96) General view of landscaping of the old quarry benches looking to the north. [SE 54460 00300].

(Figure 97) General view of till (left) and limestones of the Sprotbrough Member (right). [SE 54470 00305].

(Figure 98) Development of a sink hole and solution features along a joint in the eastern face of the quarry. [SE 54470 00370].



(Figure 95) Warmsworth Park.



(Figure 96) General view of landscaping of the old quarry benches looking to the north. [SE 54460 00300].



(Figure 97) General view of till (left) and limestones of the Sprotbrough Member (right). [SE 54470 00305].



(Figure 98) Development of a sink hole and solution features along a joint in the eastern face of the quarry. [SE 54470 00370].